In the Claims:

1.   (Currently Amended).   A method for remotely managing an [transmitting an IP packet between a first IP device and a second] IP device via a synchronous optical network, comprising: receiving IP packets from a remote IP management device [the first IP device] at a local IP gateway connected to the synchronous optical network; and

routing the IP packet to an IP tunneling layer network interface, wherein the IP tunneling layer network interface translates the IP packet to a second protocol to be transmitted over a data communications channel in overhead of frames in the synchronous optical network to a remote IP gateway connected to the second IP device.

2.   Previously Canceled.

3.   (Currently Amended). The method of claim 1, further comprising:
establishing an IP tunnel interface comprising a network address for uniquely identifying the remote IP gateway in the second communications protocol, an interface number for reaching said network address, and an IP address for said second IP device to transmit an IP packet.

4.   (Previously Amended). The method of claim 3, wherein the remote IP gateway includes a table indicating the IP address of the second IP device.

5.   (Currently Amended). The method of claim 4, wherein the remote IP gateway receives the IP address for the second IP device from the local IP gateway via the data communications channel over the synchronous optical network and sends the IP packet to the second IP device using an IP protocol.

6.   (Previously Amended). The method of claim 1, wherein said second communications protocol comprises CLNP and the synchronous optical network is a SONET network.

7.   Previously Canceled.

8.   Previously Canceled.

9.   Previously Canceled.

10.   Previously Canceled.

11.   Previously Canceled.

12.   Previously Canceled.

13.   Previously Canceled.

14.   Previously Canceled.

15.   Previously Canceled.

16.   Previously Canceled.

17.   Previously Canceled.

18.   Previously Canceled.

19.   Previously Canceled.

20.   Previously Canceled.

21.   Previously Canceled.

22.   Previously Canceled.

23.   Previously Canceled.

24.(Previously added) A network element connected between an IP network and a synchronous optical network, comprising:

a first interface for receiving IP packets from the IP network;

a routing table for storing information about IP devices connected to network elements in the synchronous optical network; and

an IP tunneling layer network interface that translates the IP packets into a second protocol to be communicated over a data communication channel in overhead of synchronous optical frames in the synchronous optical network and wherein the routing table is used to determine a destination network element in the synchronous optical network.

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25.(Previously added) The network element in claim 24, wherein the routing table associates an IP destination address with a specific port of the network element.

26.(Previously added) The network element in claim 25, wherein the second protocol is connection less network protocol (CLNP) and the synchronous optical network is a SONET network.

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